



Lumpy Skin Disease: An Emerging Disease and its Treatment Strategy

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Abstract

In this article we have discussed about the ongoing massacre the LSD virus has caused, the origin of the virus, signs and symptoms of the disease it produces and most importantly we have discussed about various treatment protocols including a few myths and how this economic evil for the poor farmer can be prevented from spreading.

Keywords: LSD (Lumpy Skin Disease); Lumpy Skin Disease Virus (LSDV)

Introduction

- LSD (Lumpy Skin Disease) is an infectious viral disease caused by lumpy skin disease virus (LSDV), which belongs to the genus capri pox virus, a part of the poxviridae family. It Primarily affects cattle circulatory system causing vasculitis or inflammation of blood vessels and lesions in different visceral organs like liver, lungs, spleen, lymph nodes. Epidermis separate from dermis forming nodule an affected cattle body. Other symptoms of disease are increase in secretion of mucus and appetite loss.
- Lumpy is caused as contagious infection being spread by vectors. Cattle affected by this infection shed virus in various body secretions. It is also established to be spread by AI in various research work published worldwide. Some Studies have also shown that it can spread through animal semen during artificial insemination.
- As per the official data, In India first LSD disease case was reported in 2019 and now it is affecting cattle population across at least 20 Indian states and UT, infecting about 11.21 lakh cattle and causing 49,628 deaths across India as on August 31.

Transmission of the dairy industry's curse

- It's important to comprehend and track the rapid transmission of this infection before continuing. The prime route of spread of this disease is mainly by vectors. The ticks like Rhipicephalus decoloratus, Rhipicephalus appendiculatus

and Amblyoma hebraeum have been reported as mechanical vectors and reservoirs of virus.

- The virus also persists in semen for upto 42 days post infection which is suspected to be another route of transmission and also Iatrogenic route can't be denied as another route of spread of virus especially when single needle is used for mass vaccination.

Plight of the holy cow

- By this point, the majority of our readers have probably seen heart breaking images of thousands of dead cattle in fields and several others who are experiencing the painful symptoms this virus causes.
- The infected cattle experience fever, lacrimation, nasal discharge, and hypersalivation, which are followed by recognizable eruptions on skin and other body parts. The incubation phase lasts 4 to 14 days. The entire cutis as well as the mucosa of the gastrointestinal tract, respiratory tract, and genital tract are affected by the well-circumscribed, spherical, slightly elevated, firm, and painful nodules. Apart from all these atrocities the regional lymph nodes also get swollen.
- And if all this is not enough, sometimes secondary infection causes extensive suppuration and sloughing and as a result animal becomes severely emaciated. The greatest loss though is due to the reduced milk yield, loss of condition or we can say reduced value of hide.

No effective treatment: a matter of concern

- Till now, no effective treatment against LSD has been developed so prevention by vaccination is most effective means of control. Treatment for LSD is symptomatic and focuses on preventing secondary bacterial problems with a combination of supportive care, anti-inflammatory drugs, antimicrobials, and fly-repelling anti-septics.
- Treatment can be initiated with:
 - Penicillin (DCR) 2.5gm/day i/m once daily.
 - Use of Methylene blue as antiviral agent has proven to be effective(0.1% MB solution PO in 3 doses per day for a period of 4 days)
 - Chlorpheniramine maleate (Inj. Anistamin TM) @ 0.5 mg/kg SID and
 - Inj. Melonex plus @ 0.5 mg/kg SID i/m for three consecutive days.
 - Ivermectin 0.2 mg/kg s/c once or Levamisole 7.5 mg/kg PO
 - Autoimmunization – 15 ml blood + 5 ml CPM once only on 3rd or 4th day after appearance of clinical signs and symptoms.
 - Himax ointment can be administered topically to erupted lesions to speed up recovery. After seven days of therapy, a noticeable improvement and the onset of feeding can be seen.

Prevention is better than cure

Homologous (Neethling LSDV strain) and heterologous (goat pox virus) live attenuated vaccines can be used to protect cattle against LSD.

To control the disease, effective control and preventive measures need to be implemented which include movement restriction of infected animal, using vector control methods like vector traps and insecticides and limiting vector breeding sites in environment too, proper carcass disposal, cleaning and disinfection of premises, personnel and environment.

Biosecurity measures should be taken at holdings so introduction of new animal in herd should be limited and from trusted sources. They must undergo testing, be deemed clinically clear,

Attenuated LSDV vaccines	Attenuated Gorgan GTPV vaccine
	
<p>Currently, there are three vaccine producers manufacturing attenuated LSDV vaccines. Live, attenuated LSDV vaccines provide good protection in cattle if 80 percent vaccination coverage is attained. In practice, all animals need to be vaccinated, including small calves and pregnant cows. Regional vaccination campaigns should be preferred to ring vaccination.</p>	<p>Commercially available GTPV Gorgan strain has been demonstrated to provide equal protection against LSD as the LSDV vaccines. Gorgan GTPV vaccine is a good, cost-effective alternative in those countries where GTP and LSD overlap</p>

Table 1

and then placed in a quarantine for at least 28 days away from the herd. With fewer entry points into properties, farm visits should be limited to necessary services. Rapid clinical diagnosis is necessary, and training cattle owners and veterinarians will help them diagnose clinical cases quickly, helping to slow spread of disease. Ring vaccination should be replaced with a mandatory, regional immunisation campaign.

True medicine comes from earth, not from a lab

- It has been long known that indigenous medicinal system of India can cure any illness even those that the modern science can't even think off. Same has proved right in case of LSD also. We by the virtue of this article would like to promote a few ethnoveterinary treatments which has been proved to be effective against this deadly virus.

- Ingredients for the first preparation include: (For one dose)
 - 10 Betel leaves,
 - 10g of black pepper;
 - And 10g of salt
- Preparation:
 - Blend to a paste and add jaggery
 - Feed the dose orally in tiny doses on the first day (Day 1)
 - Feed three doses per day beginning the second day; and so on for two weeks (Day 2 onwards)
- Second Preparation:
 - Recipe ingredients (For 2 doses)
 - Two pearls of garlic
 - Cumin 10 g
 - Coriander 10 g with 1 handful of tulsi, 10 grams of dry cinnamon leaves and 10 grams of black pepper:
 - Five betel leaves;
 - 2 bulbs of shallots:
 - Chirata leaf powder 30 g, and turmeric powder 10 g
 - 1 handful of sweet basil 1 handful of neem leaves:
 - One handful of aegle marmelos (Bel) leaves and Jaggery, 100g
- Preparation
 - Administer the dose orally in tiny quantities.
 - Administer one dose every three hours on Day 1.
 - Administer two doses per day in the morning and evening Day 2 onwards.
- For external use (if there are wounds)
 - Ingredients:
 - A handful of *Acalypha indica* leaves
 - Ten pearls of garlic.
 - 1 handful of neem leaves
 - Mehndi leaves—1 handful
 - Coconut or sesame oil—500 ml
 - Turmeric powder—20g
 - 1 handful of tulsi leaves
 - Preparation:
 - Thoroughly combine all the ingredients.
 - Boil and then bring to a cool by mixing with 500 ml of coconut or sesame oil.
 - Cleanse the wound and apply immediately
- If maggots are visible, apply Anona leaf paste or camphorated coconut oil just for the first day.

The bottom line

Lumpy Skin Illness is an emerging viral disease with a greater mortality rate and significant economic losses because cattle are important to the rural economy of India. To prevent such further outbreaks and control situation early on There is need to develop more efficient delivery strategies for vaccine that allows administration of DNA directly to easily accessible sites on Animal body and overcome difficulties that are encountered by radiational killed vaccines. National and international agencies need to adjust policies on Disease surveillance and vaccine licensing in order to prevent the emergence of new disease and One health is need of the hour as it provides an integrated, unifying approach that aims to sustainably balance and optimize the health of people, animals and ecosystems.